

The impact of country-level and fund-level factors on mutual fund performance in Vietnam

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Abstract

Purpose – The purpose of this paper is to examine the determinants of mutual funds' performance at both a country level and a fund level in Vietnam.

Design/methodology/approach – The different types of funds with more than three-year operation are selected to remove outliers of the stock market boom from 2015 to 2018. The data set includes 54 mutual funds operating during the period from 2008 until November 2018.

Findings – The research finds that there is a positive relationship between macroeconomics and mutual funds' performance. Furthermore, country-level governance such as regulation effectiveness, political stability, economic growth and financial development has a positive correlation with mutual funds' performance. However, the impact of fund-level factors is diverse with the no significant impact of board size on mutual fund's performance, while passive funds perform better than active funds in Vietnam.

Practical implications – The research results suggest that investors should pay attention to the types of funds and operating expense when making an investment decision in mutual funds. There are some recommendations for both government policy-makers and the mutual fund industry that are likely to facilitate the development of this field in Vietnam.

Originality/value – The research contributes to the understanding of what are the factors that should be considered when investing in mutual funds.

Keywords Macroeconomic factors, Investment decision, Fund performance, Determinants of performance

Paper type Research paper

1. Introduction

The growth of mutual funds has been considerable in recent years, which has been influenced by the financial market integration around the world. In detail, the total amount of financial assets managed by the global mutual fund industry reached nearly \$30 trillion in 2017, nearly double the total assets of \$14 trillion in 2013 (Champagne *et al.*, 2018). At the moment, approximately 20,000 funds are operating around the world, with more than 9,321 funds in the USA and 1,324 funds in the UK (Foran and O'Sullivan, 2014; Ro and Gallimore, 2014). The trade volume of mutual funds around the world contributes significantly to economic development and provides financial liquidity and profit for investors (Champagne *et al.*, 2018).

Mutual funds in Vietnam have increased significantly in size and trading value since the first investment fund in 1991, to more than 130 funds in 2018. According to the State Securities Committee (2018), the total assets under management of onshore investment funds are more than 208,000bn Vietnamese Dong (VND), which doubles the size of 2016. During the



following period, Vietnamese mutual funds will experience several advantages because of the positive signs within the economy. One of the pros for Vietnamese mutual funds is that the low nominal interest in the banking system would encourage available funds from the society to transfer to other investment channels, which offer a higher interest rate such as investing through a mutual fund (Ban, 2015). According to General Statistics Office of Vietnam (2018), average income in Vietnam has increased steadily from \$2,150 in 2015 to \$2,385 in 2017, and is expected to continuously rise during the next period, thanks to several free trade agreements such as ASEAN Free Trade Area, Vietnam – European Union (EU) and the Industrial Revolution 4.0. However, it is inevitable that the mutual fund industry around the world will face several disadvantages due to global economy uncertainty such as the trade war between the USA and China, which will have remarkably negative impact on global economic development in general, and Vietnamese mutual funds in particular (Champagne *et al.*, 2018; Ercolani *et al.*, 2018; Parida and Teo, 2018). Otero and Reboredo (2018) emphasized that the Vietnamese trade balance will reduce by 20 percent because Chinese products contribute more than 60 percent of the trade volume in Vietnam, which will lead to a financial crisis if the Government does not make appropriate adjustments.

According to research studies on factors affecting mutual fund performance, macroeconomic and fund-level variables are useful to locate funds outperforming the market (Banegas *et al.*, 2013). In addition, several fund characteristics such as board size, fund age, fees and expenses are the potential determinants of fund performance (Angelidis *et al.*, 2013; Bialkowski and Otten, 2011; Cuthbertson *et al.*, 2012). In terms of board size, a study of Yermack (1996) shows that smaller board sizes are more effective than larger ones. The relationship of board independence and firm performance also was tested in China with positive effects (Liu *et al.*, 2015). Fund age is the next factor to examine, while the youngest funds have a median return which is nearly double the return of all funds (Howell, 2001), there is evidence that there is no significant relationship between fund age and performance in the USA (Webster, 2002). More importantly, whether active investment management or passive investment management has better performance is open to debate. While active investment management actively selects investment opportunities, passive investment management tracks one index fund or a benchmark, which does not require selecting securities. Fama and Eugene (1972) imply that portfolio managers have the ability to shift the risk level of managed portfolios in the prediction of market price conditions, hence, the suggested ability of portfolio managers to outperform the market. There was also evidence of superior active mutual fund managers at least before fees (Barras *et al.*, 2010). However, Nanigian (2018) indicates that there is no significant distinguishable difference between the performance of passively managed mutual funds and actively managed mutual funds.

Although there are many research studies on mutual fund performance, most of them investigate within developed markets such as the USA, the UK and the EU. There are a number of papers on the relationship between fund performance and other factors in China. However, the Vietnamese market has some unique features such as the state-owned situation, the political system of a social republic and its law and constitution system, etc. Besides, Vietnamese stock markets have been formed since 1996, a more than 20-year period of operation. Compared to other markets, the Vietnamese stock market is just at its starting point, so it is not practical to apply findings of a market with more than 3,000 funds to a young market like Vietnam.

Furthermore, there is a lack of a comprehensive test for the relationship between fund performance and macroeconomic and fund factors. The factors at a country level are country governance, economic growth, regulations and laws. The factors at a fund level are board size, fund age, investment strategy, fees and expenses. Previous research studies normally deal with the relationship of fund performance and one of the above factors rather than investigating multiple factors. If an actively managed fund outperforms index funds, does the result change when taking into account fees and expenses? As fees and expenses

account for a significant part of performance with a range from 0.45 to 3 percent, this would considerably affect fund performance after fees and expenses. Fama and French (2010) said that, the performance of actively managed US equity mutual funds is close to the market portfolios, however, active management has lower returns for investors due to higher costs. Hence, the authors suggest testing the performance of mutual funds associated with a number of factors from the macroeconomic level and fund level.

To the best of the authors' knowledge, this is the first research to study the factors that determine mutual fund performance in Vietnam regarding both country-level and fund-level factors. The research will help investors and audiences understand what are the factors that should be considered when investing in mutual funds. Moreover, the result of this research will imply several recommendations for both government policy-makers and the mutual fund industry in Vietnam.

2. Summary of Vietnamese mutual fund industry

The first investment fund was the Vietnam Fund, which was launched in 1991 with a chartered capital of \$54.3m. During the next decade, the first onshore fund, Vietnam Securities Investment Fund (VFMVF1), was established in 2003 under the structure of a closed-ended fund with a fund size of 300bn VND on the closing date of the initial public offering period. Currently, there are more than 130 investment funds including onshore and offshore ones within the geographic investment region in Vietnam. These funds are operating under different structures such as equity funds, bond funds, balanced funds, money market funds, index funds, global funds and real estate investment trust funds.

Regarding size, the market capitalization of the Vietnamese stock market is 5,341 trillion VND, approximately 107 percent of gross domestic product (GDP), according to the capitalization report of the State Securities Committee (2018). While onshore funds represent roughly 0.4 percent of market capitalization, offshore funds account for a further 3.6 percent of market capitalization. Although domestic funds have small size in comparison with foreign funds in Vietnam, the total assets under management of the mutual fund industry have increased tremendously from 145,400bn VND in 2016 to 208,000bn VND in 2018, which could be seen as a positive signal that investors are starting to invest in market investment vehicles aside from bank deposits.

At the country level, mutual funds in Vietnam are regulated primarily by the State Securities Committee of Vietnam and the Ministry of Finance of Vietnam. The principal laws governing investment funds are the Law of Enterprise 2014, Law of Securities 2006 and amendments, Guidance of law of securities such as Decree No. 58/2012/ND-CP, Decree No. 60/2015/ND-CP, Circular No. 183/2011/TT-BTC dated December 16, 2011 by the Ministry of Finance, guiding the Establishment and Management to the Open-ended Fund and Circular No. 229/2012/TT-BTC dated December 27, 2012, of the Ministry of Finance, governing the establishment and management of exchange-traded funds. Regarding the disclosure requirement, mutual funds are regulated strictly by Circular No. 155/2015/TT-BTC, guiding the disclosure of information on the stock market, effective as of January 1, 2016, Decree 227/2012/TT-BTC instructing the establishment and operation of mutual funds in Vietnam, and Decree 87/2017/TT-BTC guiding the requirement of control over financial risk and enforcement for financial companies in the securities market.

At a fund level, activities of an investment fund in Vietnam are overseen by a board of representatives, general investor meetings, a supervisory bank and an independent audit. The committee of representatives consists of qualified members who meet the specific requirements and are elected by the investors. The general investor meetings, the highest authority of the mutual funds include all investors named on an official master shareholder list. The role of the supervisory bank and independent audit is to ensure the stability and soundness of the mutual fund operation by monitoring pre-trade and post-trade activities within the mutual funds.

3. Theoretical framework and hypothesis development

3.1 Theoretical framework

Figure 1 illustrates the theoretical framework of the research.

The authors aim to test how strongly fund factors and macroeconomic factors influence the mutual funds' performance. While organizational elements include the type of fund, fund age and board size (Ferreira *et al.*, 2013), country-level factors consist of economic growth and country governance factors such as corruption, voice and freedom, political stability, the rule of law and regulation quality.

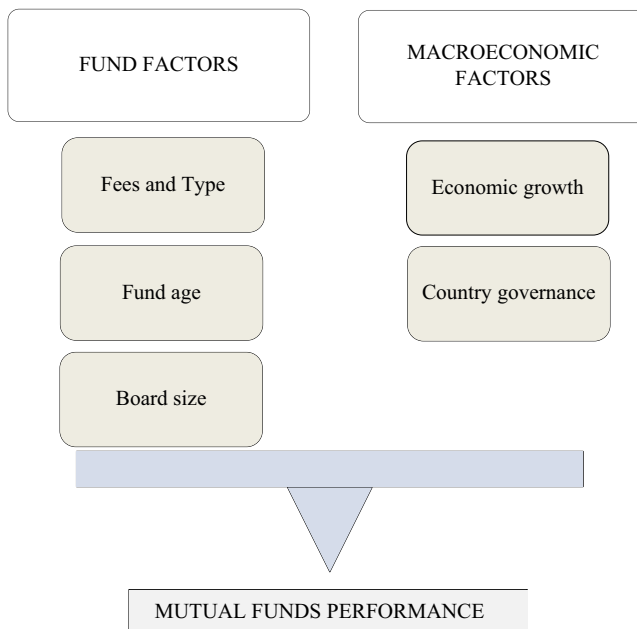
3.2 Hypothesis development

3.2.1 Mutual funds' performance. Mutual funds' performance measures the growth of the funds in terms of their total return, net asset value, dividends and capital gains distributions over a given period (Sehgal and Babbar, 2017). Mutual funds' performance must match the investment objective mentioned in the funds' prospectus.

3.2.2 Board size. One of the most studied variables regarding mutual fund performance is board size. Despite its popularity, the board size impact on mutual fund performance still puzzles several researchers with the following question: how does board size affect management skill and fund effectiveness (Banegas *et al.*, 2013; Imisiker and Ozlale, 2008)?

On the one hand, a large board represents several advantages over small ones. First, the large fund can have more resources for research and manage more effectively (Adams *et al.*, 2010). Second, a large board size often coincides with more dominant funds, which would enhance the funds' negotiation position as well as the volume of the transaction (Warner and Wu, 2011). Indeed, a higher number of transactions will reduce the commissions.

On the other hand, a larger board requires managers to continuously find excellent investment opportunities (Chen and Huang, 2011). In addition, communication or information



Source: Author's synthesis

Figure 1.
Theoretical framework

transmission among large board funds may cause several challenges due to time constraints and conflict occurring due to different managers' opinions. Small board funds are more active, have higher liquidity and have the advantage of gaining their profit regarding diminishing returns to scale:

H1. There is a positive relationship between mutual funds' board size and their performance in Vietnam.

3.2.3 Fund age. Fund age measures fund longevity and managerial ability, which would have a massive impact on fund performance in the USA. Indeed, the effect of fund age on fund performance could have two directions. In general, start-up funds might experience several cons such as low capital, higher marketing cost, inexperience in terms of management and market investment and lower rating during their initial period (Simutin, 2014). Nevertheless, Mansor *et al.* (2015) found that a newer fund may perform better than an older fund due to its mobility, higher liquidity and especially a higher profit margin due to the theory of diminishing returns to scale:

H2. There is a negative relationship between fund age and performance.

3.2.4 Fund fees. Mutual fund fees are the incentives that investors pay to managers. These fees vary considerably around the world. Santamaria *et al.* (2018) found that large funds charge lower prices in Korea and Japan while in the UK and USA impose higher fees. Empirical evidence has shown the diversity of the effect of costs and mutual fund performance. Evidence in Europe supports the negative relationship between fund fees and fund performance (Petajisto, 2013). Meanwhile, Matallin-Saez *et al.* (2012) argued that there is no significant relationship between them.

The investors purchasing or selling shares of the fund can be charged fees known as front-end load and back-end load, respectively. The purpose of the back-end load is to discourage redemption by making it expensive. Lemesheko and Mukhacheva (2014) found either a negative relation or no relationship between mutual fund performance and loads in different countries:

H3. There is a negative relationship between the funds' fees and their performance.

3.2.5 Fund type. Investment funds are classified as passively and actively managed funds in terms of the investment approach. A passively managed fund is an index fund or exchange-traded fund (ETF) which has an investment strategy to replicate the return of its tracking index, while an actively managed fund actively selects stocks based on a certain investment strategy of the fund. Malkiel (2003) found that passive funds such as the S&P500 outperform more than 70 percent of the active funds in the US equity market. Furthermore, outperformance of top active funds disappears when benchmarked to the passive fund performance (Alan and Kevin, 2018):

H4. Passively managed funds perform better than actively managed funds.

3.2.6 Economic development. There are several researchers who state that there is a positive link between a country's level of development and mutual funds' performance. There are three reasons that would lead to that link. First of all, economic development coincides with better financial education and financial skills. Managers who are likely to be more skilled may make better investment decisions. Second, better economic development would attract more human capital. Third, the level of technology in developed countries is much higher than in developing countries, which enhances the efficiency of the transactions (Asal, 2016; Dharmalingam and Gurunathan, 2016; Kiymaz, 2015):

H5. There is a positive relationship between economic development and mutual funds' development.

3.2.7 Country governance factors. Country governance factors include voice and accountability, political stability, government effectiveness, regulatory quality, the rule of law and control of corruption (Wermers, 2011). In general, the variety of country governance factors is likely to influence investor behavior considerably. Investors would be reluctant to invest in markets where their rights are not adequately protected or have a high level of corruption, which imposes an extra cost on their operation (Pouliot, 2016). Accordingly, the research expects that the mutual funds' performance is positively related to country governance factors:

H6. There is a positive relationship between country governance factors and mutual funds' development.

4. Research design

4.1 Data

The author examined the impact of macroeconomic and fund factors on mutual funds' performance during the period from 2008 to November 2018 based on financial statements and annual reports. A mutual fund is included in our data set if, first, its data could be obtained as performance data for at least two years and is then matched with ownership data from financial statements and annual reports; second, the investment strategy of the fund focuses mainly on equity and other non-fixed income assets comparable with the targeted index. In addition, macroeconomic data sets are collected from the World Bank.

The data set includes 216 observations of 54 mutual funds from 2008 to November 2018 that represent over 70 percent of the number of mutual funds operating for more than two years in Vietnam. In the data set, the authors selected mutual funds which are operating at least two years and removed all mutual funds operating under two years to avoid outliers of operating expense and performance. This is because during the first two years, mutual funds usually have set-up fees, licensing fees and other operating expenses causing a higher total expense ratio (TER). Furthermore, performance of less than two-year operation lacks representativeness because the stock market in Vietnam boomed from 2017 to 2018 during which most of the funds reached a high performance of at least 20 percent per annum.

4.2 Econometrics model and variables construction

The econometric model is illustrated as below:

$$\begin{aligned} \text{fund_growth}_{it} = & \beta_0 + \beta_1 \times \text{board_size}_{it} + \beta_2 \times \text{fund_age}_{it} + \beta_3 \times \text{fees}_{it} \\ & + \beta_4 \times \text{open_fund}_{it} + \beta_5 \times \text{foreign}_{it} + \beta_6 \times \text{eco_growth}_{it} \\ & + \beta_7 \times \text{fin_dev}_{it} + \beta_8 \times \text{voice}_{it} + \beta_9 \times \text{pol_sta}_{it} \\ & + \beta_{10} \times \text{gov_eff}_{it} + \beta_{11} \times \text{reg_qua}_{it} + \beta_{12} \times \text{corruption}_{it} + \varepsilon. \end{aligned}$$

To test the relationship between a mutual fund's performance and other factors, the research utilizes panel data analysis: ordinary least squares (OLS), fixed effect and random effect. Based on the Hausman test and the nature of the data, the test will determine which method is suitable for the analysis.

The variables are defined in Table I.

5. Empirical results and discussion

5.1 Descriptive analysis

The descriptive results of the variables within the model are illustrated in Table II.

As can be seen from Table II, the average growth of Vietnamese mutual funds is 0.064 or 6.4 percent, which is lower than developed countries such as the USA (11 percent) or the UK (9.5 percent) (Ayadi *et al.*, 2016; Berkowitz *et al.*, 2017; Moreno *et al.*, 2014). However, this

No.	Variable	Definition	Measurement	Sources
<i>I. Mutual fund performance</i>				
1.	fund_growth	The growth of mutual funds in terms of net asset value	$(NAV_t - NAV_{t-1}) / (NAV_{t-1})$	Bloomberg (2018) and fund's financial statement
<i>II. Fund factors</i>				
2.	board_size	Size of the board	Log (number of directors)	Bloomberg (2018) and fund's financial statement
3.	fund_age	Fund's age	Number of years since the fund launch date	Bloomberg (2018) and fund's financial statement
4.	fees	All the fees that investors have to pay for funds	Front-end and back-end loads	Bloomberg (2018) and fund's financial statement
5.	passive_fund	Whether it is a passively managed fund	Dummy variable 0: actively managed fund 1: passively managed fund	Bloomberg (2018) and fund's financial statement
6.	foreign	Whether it is a foreign or domestic fund	Dummy variable 0: local fund 1: foreign fund	Bloomberg (2018) and fund's financial statement
<i>III. Macroeconomic factors</i>				
7.	eco_growth	Economic growth	Change in GDP	World Bank (2018)
8.	voice	Voice and accountability within the country	Assigned by World Bank (higher number implies better governance)	World Bank (2018)
9.	pol_sta	The political stability of the country	Assigned by World Bank (higher the number implies better governance)	World Bank (2018)
10.	gov_eff	Government effectiveness of the country in terms of enforcement	Assigned by World Bank (higher number implies better governance)	World Bank (2018)
11.	reg_qua	Regulation quality	Assigned by World Bank (higher number implies better governance)	World Bank (2018)
12.	corruption	Control of government over corruption	Assigned by World Bank (higher number implies better governance)	World Bank (2018)

Table I.
Variable construction **Source:** Author's collection

Variable	Obs.	Mean	SD	Min.	Max.
fund_growth	180	0.0645364	0.1087276	-0.226	0.295
fund_age	180	7.8	4.437427	2	23
fees	130	1.630217	0.6689092	0.15	3.09
foreign	180	0.65	0.4789695	0	1
passive_fund	180	0.0666667	0.2504897	0	1
board_size	180	0.6917037	0.6260629	0	2.197225
eco_growth	180	6.447899	0.2510482	6.2	6.7
voice	180	-1.382955	0.0242634	-1.407117	-1.358793
pol_sta	180	0.1192721	0.0495083	0.0699705	0.1685737
gov_eff	180	0.0389306	0.0287083	0.0103421	0.0675191
reg_qua	180	-0.4683308	0.0144561	-0.4827265	-0.4539351
rule_law	180	-0.1456693	0.194487	-0.3393443	0.0480056
corruption	180	-0.4112505	0.0149978	-0.4261857	-0.3963152

Table II.
Descriptive analysis result **Source:** Author's calculation

figure is still higher than several emerging countries such as Bangladesh (5.5 percent) or South Africa (4.5 percent) (Tudorache *et al.*, 2015; Wang *et al.*, 2015). From the investor perspective in Vietnam, mutual funds' returns are not as attractive as other investment channels such as banks (quite similar returns but at lower risk) or the stock market (higher yield). The country-level factors in Vietnam are much lower than in other Asian countries such as Thailand, Cambodia and Laos. Indeed, the country governance index is less than 0, which implies abysmal governance (Zhang and Tjong, 2012).

The growth of Vietnamese mutual funds during the observation period is depicted in Figure 2. In detail, the mutual funds' industry performance in Vietnam was quite impressive with right skewness and 10 percent of fund growth average, while many enterprises in other industries such as textiles, food production and the retail industry experienced a decline in profit during this period due to competition from foreign companies and the low growth rate of the global economy.

5.2 Empirical results and discussion

5.2.1 Correlation. The correlation between variables is illustrated in Table III.

There could be a positive link between mutual fund growth and other factors, except for economic growth, board size and fund age. The correlation results could be used to see whether multicollinearity problems exist between variables. As the correlation between economic growth and the type of fund, economic growth and financial development is

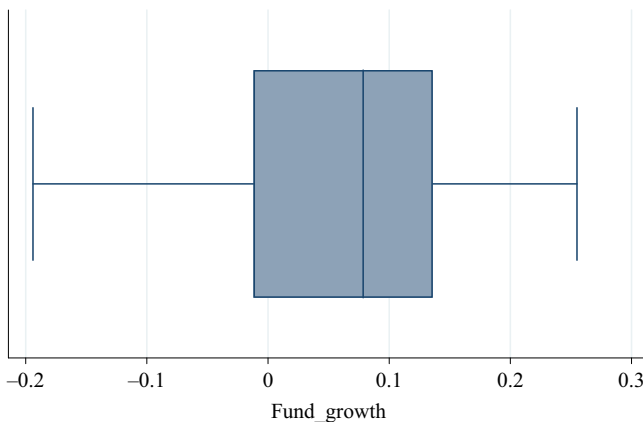


Figure 2. The distribution of mutual funds growth in Vietnam

Source: Author's calculation

	fund_g~h	board_~e	fund_age	fees	open_f~d	foreign	eco_gr~h	fin_dev
fund_growth	1.0000							
board_size	-0.1951	1.0000						
fund_age	-0.2587	0.0100	1.0000					
fees	0.0722	0.0433	-0.0296	1.0000				
open_fund	0.3130	0.1641	0.0192	0.3084	1.0000			
foreign	-0.3137	0.0595	0.4953	0.0658	0.0807	1.0000		
eco_growth	-0.4962	0.0374	0.1046	-0.0092	-0.0160	-0.0193	1.0000	
fin_dev	0.4962	-0.0374	-0.1046	0.0092	0.0160	0.0193	-1.0000	1.0000

Source: Author's calculation

Table III. Correlation between variables in the model

greater than 0.3, a multicollinearity issue could exist between these factors. Further tests will be conducted to examine this issue.

5.2.2 *Econometric results.* To determine the appropriate model among generalized least squares (GLS), the fixed effect and random effect – the three important techniques in analyzing the panel model, this research applies the Breusch and Pagan and Hausman test (Table IV).

To determine the appropriate econometrics model between OLS and other panel data techniques:

H_0 . $\text{Var}(u) = 0$ or the OLS method is appropriate.

$H1$. $\text{Var}(u)$ difference from 0 or the OLS is inappropriate.

Since $\text{Prob} = 0.036 < 0.05$, it is enough evidence to conclude that the OLS method is inappropriate at the 5 percent level of significance.

Hausman test (Table V):

H_0 . Random effect model is appropriate.

$H1$. Fixed effect model is appropriate

Since $\text{Prob} = 0.3385 > 0.05$, we do not reject the null hypothesis at a 5 percent significance level. There is enough evidence to conclude that the random effect model is appropriate.

Random effect model results. The model result is depicted in Table VI.

The R^2 equals to 0.553 and $\text{prob} = 0.000 < 0.05$ implying that the model fit is quite good. In detail, the change in an independent variable could explain the 55.3 percent change in mutual funds' performance.

The hypothesis results are summarized through Table VII.

Within corporate factors, board size does not have a significant impact on mutual fund performance as the $p > 0.05$. In fact, most of the mutual funds would assign a number of board members, which meets the minimum requirement for board size under regulated laws. Mutual funds may ask for advice from board members in specific valuation circumstances, however, the detail of the valuation approach is submitted at the time of asking for advice. Board members approve the content of documents for meetings of investors or pass some

Table IV. Breusch and Pagan Lagrangian multiplier test for random effects: growth $(id,t) = Xb + u(id) + e(id,t)$ estimated results

	Var	SD = sqrt (Var)
growth	0.0117656	0.1084694
e	0.0054759	0.0739993
u	0.0006198	0.0248966
Test $\text{Var}(u) = 0$		

Table IV. Breusch and Pagan Lagrangian multiplier test (xttest0)

Test $\chi^2(1) = 1.26$
 $\text{Prob} > \chi^2 = 0.0036$
Source: Author's calculation

$\chi^2(2)$	$= (b-B)' [(V_b - V_B)^{-1}] (b-B)$
	$= 2.17$
$\text{Prob} > \chi^2$	$= 0.3387$

Table V. Hausman test result

Note: Test – H_0 : difference in coefficients not systematic
Source: Author's calculation

Random-effects GLS: regression		Number of obs.	= 180		
Group variable: id		Number of groups	= 43		
R^2 :		Obs. per group:			
Within	= 0.4863	min.	= 1		
Between	= 0.5568	avg.	= 1.8		
Overall	= 0.5553	max.	= 2		
		Wald $R^2(10)$	= 83.46		
		Prob > χ^2	= 0		
corr (u_i, X)	= 0 (assumed)				
	Coef.	SE	z	P > z	[95% Conf. interval]
fund_age	0.0017292	0.002885	0.6	0.549	-0.0039254 0.0073837
fees	-0.02914	0.0133873	-2.18	0.030	-0.0553785 -0.002901
foreign	0.0732539	0.0230202	30.18	0.001	0.0281352 0.1183727
passive_fund	0.149792	0.031154	40.81	0.000	0.0887313 0.2108527
board_size	0.014618	0.0155439	00.94	0.0347	-0.0158474 0.0450835
eco_growth	0.1914701	0.0310461	-6.17	0.000	-0.2523194 -0.130621
voice	1.981103	0.3212283	60.17	0.000	1.351507 2.610699
pol_sta	0.9709123	0.1574297	60.17	0.000	0.6623557 1.279469
gov_eff	1.674365	0.2714918	60.17	0.000	1.14225 2.206479
reg_qua	3.325126	0.5391566	60.17	0.000	2.268399 4.381854
rule_law	0.2471539	0.0400751	0.17	0.000	0.1686082 0.3256996
corruption	3.205011	0.5196804	60.17	0.000	2.186456 4.223566
_cons	1.327493	0.200612	60.62	0.000	0.9343006 1.720685
sigma_u	0.034913		(fraction of variance due to u_i)		
sigma_e	0.0666426				
ρ	0.2153505				

Source: Author's calculation

Table VI.
Random effect
model results

Hypothesis	Results
H1	Rejected
H2	Rejected
H3	Accepted
H4	Accepted
H5	Accepted
H6	Accepted

Source: Author's calculation

Table VII.
Hypothesis results

off-exchange transactions that portfolio managers come up with. However, it is required at least two-thirds of the board members are independent under Circular No. 183/2011/TT-BTC dated December 16, 2011 by the Ministry of Finance and Circular No. 229/2012/TT-BTC dated December 27, 2012 by the Ministry of Finance. These independent members, therefore, neither have a position in an asset management company nor are involved in the daily operation of mutual funds, which could partially explain the non-significant effect of board size on fund performance.

In terms of fund age, there is no evidence of significant effect of fund age on fund performance. This result is surprising because Howell (2001) suggested investing in mutual funds in the first three years of a fund's life, based on the statistic result of 3,733 funds. However, the finding is in line with the statistical analysis of Webster (2002) that evidenced that there is no significant relationship between fund raw performance and fund age. In the screening statistic, the highest performance was above 18 percent per annum with more than 16 operation years, and a number of above 10-year-operation mutual funds achieved

more than 10 percent per year, which is competitive with the performance of those funds operating from two to five years.

Expense data is the TER, a measure to show the total cost for operating a fund, which is calculated by dividing total expenses by assets under management. In Table VII, it shows that the higher the TER the lower the performance of mutual funds. In the data set, index funds have the lowest TER, thanks to a passive investment strategy. While there is no evidence of superior actively managed funds, performance of index funds is likely to be better than open-ended funds in the context of ETF's significantly lower TER.

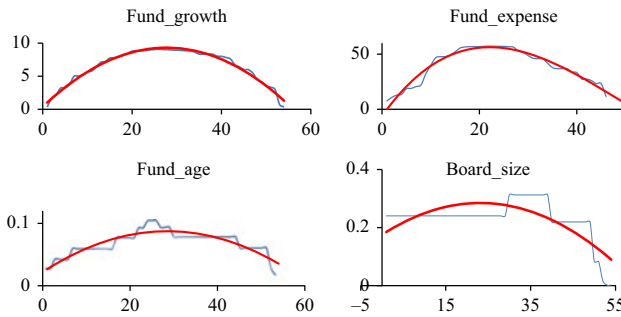
Passively managed funds perform better than actively managed funds since the p -value is 0.000, much smaller than 0.05. This result is similar to the spirit of Alan and Kevin (2018) showing evidence that index funds outperform active funds in most of the benchmark indexes. In the data set, the authors exclude mutual funds, which are operating under a two-year period as at the research date, to avoid outliers. In terms of mutual funds, while closed-end funds are not available for most individual investors, open-end funds and index funds are the options for individuals on the stock market. Some investors may look for an open-end fund that outperforms index funds and benchmarks, so they put their money in the betting game that their invested fund is superior. Based on the finding, the authors suggest individuals should select passively managed funds to invest in when there is evidence of passive funds dominating active funds.

All the country-level factors have a positive impact on the mutual funds industry with p -value < 0.05 . Of these factors, regulation quality and corruption control have the highest impact compared to the others. This is understandable because regulating laws have a number of fixed rules on investments as well as on operation activities, such as a minimum number of investments and the cap rate for investing in a specific company and related parties, under Circular No. 183/2011/TT-BTC dated December 16, 2011 by the Ministry of Finance and Circular No. 229/2012/TT-BTC dated December 27, 2012 by the Ministry of Finance. This affects directly investment opportunities and fund performance. Therefore, the authors have come up with some suggestions to not only improve the investment environment for mutual funds, but also make the mutual funds become a more competitive alternative investment for investors besides traditional channels. First of all, easing investment restrictions on unlisted assets is necessary to open more investment opportunities for mutual funds. Currently, requirements for investing in unlisted securities are strict and hard to meet. To be passed as an unlisted deal by supervisory banks, mutual funds must provide official documents to prove that an unlisted company will be listed within the next 12 months. The official documents are defined differently based on the interpretation of related supervisory banks. Generally, the process for investing unlisted deals is time-consuming, and sometimes mutual funds are unable to go further with the deals due to their own supervisory bank regulations. Second, the government should encourage more custodian banks to enter the mutual fund market. Currently, there are only two entities that provide services for custody and supervision for domestic funds. This narrows the options of mutual funds and makes service fees uncompetitive. Services fee paid to supervisory banks and custodian banks usually account for more or less than 1 percent of total assets under management per annum, twice the management fee for bond or index funds of most asset management companies in the Vietnamese stock market, and it becomes the highest fee in operation of those bond and index funds. Therefore, the government should pay more attention to regulation quality and control over corruption in Vietnam.

5.2.3 Model validity. The first requirement when running an econometrics model is the normality of the variables. As shown in Figure 3, it can be seen that the main variables have a normal distribution.

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity (Table VIII):

H_0 . There is constant variance.



Source: Author's calculation

Figure 3.
The distribution of the
main variables

H_0 :	Constant variance
Variables:	fitted values of growth
$\chi^2(1)$	= 1.04
Prob > χ^2	= 0.3078

Source: Author's calculation

Table VIII.
Heteroskedasticity
test result

H_1 . The variance is not constant.

Since $p = 0.3078 > 0.05$, there is not enough evidence to reject the null hypothesis at a 5 percent level or the variance is constant.

Autocorrelation (Table IX):

H_0 . There is no serial correlation.

H_1 . There is a serial correlation within the model.

Since $p\text{-value} = 0.5892 > 0.05$, there is not enough evidence to reject the null hypothesis at a 5 percent level or the model does not have a serial correlation issue.

Multicollinearity (Table X). As the mean of variance inflation factors (VIF) is less than 10, there is no multicollinearity issue within the model in general. However, the voice of citizens

lags(p)	Breusch–Godfrey LM test for autocorrelation		
	χ^2	df	Prob > χ^2
1	0.292	1	0.5892

H_0 : no serial correlation

Source: Author's calculation

Table IX.
Autocorrelation
test result

Variable	VIF	1/VIF
voice	16.35	0.061178
board_size	9.73	0.102759
age	6.12	0.16343
open_fund	4.39	0.227705
foreign_fund	3.15	0.317495
Mean VIF	7.95	

Source: Author's calculation

Table X.
Multicollinearity
test result

may experience this problem due to the high correlation with other country-level factors. Nevertheless, this is not a huge problem when running an econometrics model in the field of finance.

6. Conclusion

Using a sample of 54 mutual funds in Vietnam from 2008 to November 2018, this study investigates the determinants of mutual fund performance such as country-level and fund-level factors.

The effects of fund-level factors play an essential role in explaining mutual fund performance. Passive funds appear to have better performance than the active ones while higher expenses cause negative effects on performance. In addition, there is no significant difference between mutual funds managed by large boards and small boards. There is also an asymmetry in the fund performance–age relation within the mutual fund industry in Vietnam.

Beyond fund characteristics, country governance could explain more regarding its impact on mutual fund performance in Vietnam. Indeed, there is a positive relationship between a country level of financial development and mutual fund performance. Stronger legal institutions with better investor protection and rigorous law enforcement would enhance funds' performance. Regarding the absolute value of the economic effect, regulation quality is essential in explaining mutual fund performance in Vietnam. In order to enhance mutual fund industry performance, the government should pay more attention to regulation quality as it plays the most important role in explaining changes in mutual funds' performance.

There are some limitations to this study. First of all, the sample size is relatively small with only 54 mutual funds during the last 10 years. Second, the number of directors who have no material benefit (except for the sitting fees) with the funds would be incorrect due to the complicated relationship between board members within mutual funds as well as the high degree of corruption in Vietnam. The mutual funds in Vietnam often disclose their information annually or semi-annually rather than monthly, which also hinders the analysis result regarding the impact of seasonality on fund performance.

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